DOCUMENT RESUME

ED 131 287 CE 008 878

TITLE	Using the "Dictionary of Occupational Titles" as a Source of Occupational Information.
INSTITUTION	Colorado State Univ., Ft. Collins. Curriculum Materials Service.
REPORT NO	VT-103-210
PUB DATE	Jun 75
NOTE	67p.
EDRS PRICE	MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS	Individualized Curriculum; Instructional Materials; *Learning Activities; *Occupational Information; Programed Texts; *Resource Materials; Study Guides; Vocational Education
IDENTIFIERS	*Dictionary of Occupational Titles; DOT

ABSTRACT

This individualized instructional module is designed to instruct the learner in the use of volumes 1, 2, and 3 of the "Dictionary of Occupational Titles" (DOT), and its two supplements. It contains learning objectives, a pretest, a posttest, test and worksheet keys, and learning activities with accompanying worksheets. Appendixes contain additional explanatory material regarding use of the DOT. (NJ)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED131287

USING THE DICTIONARY OF OCCUPATIONAL TITLES AS A SOURCE OF OCCUPATIONAL INFORMATION

Wiley B. Lewis, Coordinator
Curriculum Materials Development

Curriculum Materials Service
Department of Vocational Education
College of Professional Studies
Fort Collins, Colorado 80523

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

June, 1975

VT 103 210

Publication Number CMS-1

CE 008 878

Learner Information

Name _____

Institution _____

Date Study of Module Was Begun _____

Date Study of Module Was Completed _____

Estimated Time Devoted to Study of Module _____ Hours _____ Minutes

* * * * *

Curriculum
Materials
Service
DEPARTMENT OF VOCATIONAL EDUCATION — COLORADO STATE UNIVERSITY — FORT COLLINS, COLORADO 80523

CE 008 878

CONTENTS

INTRODUCTION. 1

OBJECTIVES. 2

WHAT NOW? 3

PRETEST: USING THE DOT AS A SOURCE OF OCCUPATIONAL INFORMATION 5

NON-MODULE RESOURCES REQUIRED 7

DOT ACTIVITIES. 8

1. Preparing to Make Decisions. 9

2. Using Volume I of the DOT. 9

3. Using Volume II of the DOT: The Code Number 9

4. Using Volume II of the DOT: Worker Trait Groups 17

5. Using the Supplement to the DOT. 19

6. Using Supplement 2 to the DOT. 25

PROGRESS CHECK. 29

POSTTEST: USING THE DOT AS A SOURCE OF OCCUPATIONAL INFORMATION. 30

APPENDICES

APPENDIX A: Explanation of Relationships within Data, People and Things Hierarchies. 33

APPENDIX B: Explanation of Worker Trait Components. 37

APPENDIX C: Keys. 49

INTRODUCTION

What is the Dictionary of Occupational Titles (DOT)? In answering this question one should consider the following:

1. Dictionary -- Generally perceived as a sequential listing of words or numbers plus related descriptive data.
2. Occupation -- Of, relating to, or resulting from a particular vocation or the principle business of one's life.
3. Title -- A descriptive or general heading.

From these it might be concluded that the Dictionary of Occupational Titles is a sequential listing of the titles of vocations. And basically, this would be correct.

In reality, however, the DOT is much more. It is an inventory of occupations within the American economy and, as such, is the most comprehensive single source of occupational information available. This current edition, the third, of the DOT was prepared by the United States Department of Labor. It is published in a two-volume set with two supplements.

Intended primarily for use by personnel of the United States Employment Service, the DOT has now become a standard reference for many educational, industrial, business, and counseling personnel. From the activities in this module you will learn how to recover various types of occupational information which are contained in the DOT publications.

OBJECTIVES

After completing the various activities you will be able to:

1. Determine which of the DOT publications contain specific types of occupational information.

2. Retrieve occupational information from the DOT publications.

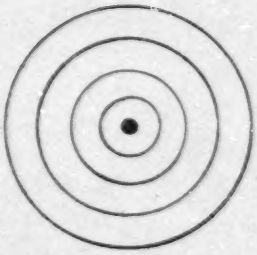
WHAT NOW?

Are you familiar with the Dictionary of Occupational Titles? Do you know the types of occupational information provided in the DOT? Can you locate specific types of occupational information in the DOT?

To find out for yourself the answers to the above questions and/or to demonstrate your knowledge and abilities, you are asked to complete the DOT pretest which begins on the next page. Perhaps you already know quite a bit about the DOT; maybe you even know everything that is covered in this module. Your pretest score will help you find out where you should start, decide whether you can skip sections of the module, and identify the areas of study on which you should concentrate.

Complete the Pretest now. Answer each of the questions. Do your best.

PAGE 5, PLEASE



How did you do?

Darken the block which contains the number of questions you answered correctly.

Number Correct

1	2	3	4	5	6	7	8	9	10	11	12

Complete all or some of the activities in this module. Identify the activities to be completed below.

Good! Go on to the next module.

If activities described in this module are to be completed, identify the specific activities to be completed below. First, record in the chart below the number of pretest questions requiring the use of specific DOT publications

for which correct pretest answers were provided. For example, in relation to the topic "Volume I," determine whether you answered pretest questions 1, 2, and 7 correctly and record the number of these questions you answered correctly in column three. Repeat this process for each topic until column three is completed.

Topics (DOT Publications)	Pretest Question Numbers	Number of Questions You Answered Correctly	Minimum Acceptable Number of Questions Answered Correctly	Activity Number
Volume I	1, 2, 7		3	2
Volume II: The Code Number	11, 12		2	3
Volume II: Worker Trait Groups	6, 8, 10		3	4
Supplement	3, 4, 5, 8, 9		4	5
Supplement 2	3, 4, 5, 8, 9		4	6

Next, the module activities which are to be completed should be identified. This should be done by comparing the numbers in columns three and four for each of the topics. If the number in column three is less than the number in column four, it is suggested that the related module activity be completed. If an activity is to be completed, circle the activity number in column five. When the activities to be completed have been identified, turn to the "Non-module Resources Required" on page 7.

PRETEST:

USING THE DOT AS A SOURCE OF OCCUPATIONAL INFORMATION

(Page 1 of 2)

Directions: Complete the pretest by providing the appropriate information. Use Volumes I and II of and the Supplement and Supplement 2 to the DOT as appropriate.

0. Occupational title: *Gold Charmer*

1. DOT code number: _____

2. Describe the work this occupation entails. _____

3. What is the lowest level of mathematical development which a worker on this occupation should possess? _____

4. What is the maximum lift in pounds required of the worker? _____

5. Is the work considered to be hazardous? _____

6. To which worker trait group is this occupation assigned? _____

7. What is another name by which this occupation might be known? _____

8. What is the lowest level of reasoning development which the worker should possess? _____

PRETEST KEY

(Page 2 of 2)

9. How much time is required for the worker to learn the techniques, acquire the information, and develop the facility needed for average performance in a specific occupation-worker situation?_____

_____

_____

_____

_____

10. List at least one clue which might be of value for relating potential workers' characteristics and the occupational requirements for this occupation's worker trait group?_____

_____

_____

_____

_____

11. To what occupational group is this occupation assigned?_____

_____

12. Considering the occupation's relationship to data, people, and things, in which of these categories should a worker in this occupation expect primary involvement?_____

_____

Check your answers with those shown on the Pretest Key on page 50 Place a check beside each correct answer. Then, count the number of correct answers and return to the bottom of page 3.

10

NON-MODULE RESOURCES REQUIRED

While completing the activities listed under "DOT Activities" in this module, you will need the following resources not included in this module.

Books

(one copy of each)

1. United States Department of Labor. Dictionary of Occupational Titles, 1965. Volume I: Definitions of Titles. Third Edition. Washington, D.C.: U.S. Government Printing Office, 1965.

2. United States Department of Labor. Dictionary of Occupational Titles, 1965. Volume II: Occupational Classification and Industry Index. Third Edition. Washington, D.C.: U.S. Government Printing Office, 1965.

3. United States Department of Labor. Selected Characteristics of Occupations, 1966: A Supplement to the Dictionary of Occupational Titles. Third Edition. Washington, D.C.: U.S. Government Printing Office, 1966.

4. United States Department of Labor. Selected Characteristics of Occupations by Worker Traits and Physical Strength, 1968: Supplement 2 to the Dictionary of Occupational Titles. Third Edition. U.S. Government Printing Office, 1968.

5. United States Department of Labor. Relating General Educational Development to Career Planning. Washington, D.C.: U.S. Government Printing Office, 1971.

Check with the facilitator concerning the availability of these books if you have difficulty locating them. Once it has been determined that the required resources are available, proceed to the next section of this module, "DOT Activities."

DOT ACTIVITIES

Information in the DOT has often been shown to be of value to individuals in selecting and preparing for their potential occupations* or in advising others regarding such considerations by making them aware of what each occupational group involves and what training and preparation is needed, including general mathematics and language requirements. Similarly, the DOT can be of value to one attempting to analyze a particular occupation by serving as a basis for establishing an occupational description and by providing input relative to worker characteristics including the required knowledge skills, and aptitudes.

One must understand that the information presented in the DOT is oriented toward a group of occupational situations, not a specific employment opportunity. Though a specific work opportunity may present slightly different requirements, information in the DOT should be applicable to most occupations of a particular type.

Activities identified in this section will enable you to develop the competence and skill necessary for using the DOT for this latter purpose. You may complete each of the activities listed or select specific activities based upon your knowledge of your own capabilities.

---

*The term "job" as used throughout the DOT publications has the same meaning as the term "occupation" as the latter is used in this module.

1 PREPARING TO MAKE DECISIONS

Review the section of this module titled "What Now" on page 3 as a basis for deciding which of the following activities you should complete. Be familiar with the topics you checked as they will serve to guide your studies in later activities. You might find it useful to identify the activities you checked in the earlier section by circling the number of each activity to be completed.

2 USING VOLUME I OF THE DOT

Volume I of the DOT contains an alphabetized listing of 21,741 jobs and 35,550 job titles with DOT code numbers and definitions which include information on WHAT work gets done, HOW it gets done, and WHY it gets done.

DOT Code Number

Job Title → CATALOGER (library) 100.388. →

catalog librarian; descriptive cataloger.

What → *Compiles information on library materials, such as books and periodicals, and prepares catalog cards*

Why → *to identify materials and to integrate information into library catalog: verifies author, title, and classification number . . .* ← How

From page XV, Volume I, DOT

To ensure that you can locate this type of information in Volume I of the DOT, complete Worksheet 1. The edge index for Volume I plus an explanation of its use is shown on the last page of the volume and might prove of value to you in locating the requested information. If you have difficulty locating the required information, contact the unit facilitator or a fellow learner who has demonstrated an ability to use Volume I of the DOT.

3 USING VOLUME II OF THE DOT: THE CODE NUMBER

Volume II of the DOT is designed to complement Volume I in which thousands of occupations in the American economy are listed and defined. Volume II contains information relevant to grouping jobs having the same basic occupational, industrial, or worker characteristics so one might readily discern relationships among occupations; and as a standard approach to classifying the abilities,

WORKSHEET 1

LOCATING INFORMATION IN VOLUME I OF THE DOT

Occupational Title	DOT Code Number	WHAT Work Gets Done	WHY It Gets Done	HOW It Gets Done
1. Acid Dumper				
2. Goodwill Ambassador				
3. Snout Puller				
4. Sugar Tapper				
5. Whisker Kinker				

Once you have completed this worksheet, compare your answers with those provided on Worksheet 1 Key in Appendix C, page 52. Attempt to resolve any differences in the two sets of answers by discussing them with a fellow learner or with the facilitator. Then begin on the next learning activity you have identified.

vocational experiences, and potentials of workers.

From Volume II one might obtain relevant information concerning worker traits and specific occupations. Particular emphasis is placed upon work performed, worker requirements, training, methods of entry, and worker qualification profiles.

Basic to finding the desired information in Volume II, one must understand the make up of the DOT Code Number. Each occupation identified in the DOT is assigned a six digit (three digits to the left of the decimal and three to the right -- xxx.xxx) code number. Each of the digits has a specific meaning.

The first three digits (three to the left of the decimal -- xxx.) of the DOT code number indicate the occupational group arrangement. The first digit indicates in which of the nine occupational categories the occupation falls. The categories are identified at the top of page 1, Volume II. Review the categories at this time.

Note that the first category, "Professional, technical, and managerial occupations," may be represented by either the numeral 0 or the numeral 1. All the other categories are represented by a single numeral. For example, Brick Cleaner 861.887 (page 75, Volume I and page 194, Volume II) would be placed in the category represented by the numeral 8, "Structural work occupations."

When combined with the first digit, the second digit indicates the occupational division in which the occupation would be placed. These divisions, eighty-three in all, are identified on pages 1 and 2, Volume II. For example, Brick Cleaner 861.887 would be placed in the division titled "Construction occupations, n.e.c." (not elsewhere classified) under the category "Structural work occupations" (page 2, Volume II). Note that the entire sequence of numerals 80 through 89 are not listed. The missing numerals do not appear as part of any assigned DOT code number; thus titled divisions are not required. This same line of reasoning applies to possible divisions in other categories.

The third digit of the DOT code number, when combined with the first and second digits, indicates the occupational group in which the occupation would be placed. Each of the 603 groups is identified on pages 3 through 24 of

Volume II. For example, Brick Cleaner 861.887 would be associated with the group "Brick and stone masons and tile setters" under the division "Construction occupations, n.e.c." and the category "Structural work occupations" (page 22, Volume II).

This information related to the occupation Brick Cleaner 861.887 might be summarized as follows:

> Brick Cleaner 861.887 (page 75, Volume I and page 194, Volume II). The 8 indicates Structural work occupations (category); 86 indicates Construction occupations, n.e.c. (division) and 861 indicates Brick and stone masons and tile setters (group).

Other relevant examples which one might consider are listed below.

1. Bank-reconciliation Clerk 216.388 (page 41, Volume I and page 57, Volume II). The 2 indicates Clerical and sales occupations (category), 21 indicates Computing and account-recording occupations (division), and the 216 indicates Computing-machine operators (group).
2. Telegraph Engineer 003.081 (page 728, Volume I and page 33, Volume II). The 0 indicates Professional, technical, and managerial occupations (category); 00 indicates Occupations in architecture and engineering (division); and 003 indicates Electrical engineering occupations (group).
3. Medical Secretary 210.368 (page 461, Volume I and page 55, Volume II). The 2 indicates Clerical and sales occupations (category); 20 indicates stenography, typing, filing, and related occupations (division); and 201 indicates Secretaries (group).

Occupations identified in Volume I are categorized according to occupational category, division, and group beginning on page 33 of Volume II. The occupations are listed sequentially in the various classifications by DOT code number.

While the first three digits of the DOT code number will provide you with much relevant

information, you will find the last three digits (digits to the right of the decimal -- .xxx) to be of primary interest in occupational analysis as they denote worker functions. The first digit to the right of the decimal (197.137) indicates the worker's degree of involvement with data; the second (197.137) reflects his degree of involvement with people; and the third (197.137) refers to his degree of involvement with things. The importance of these digits stems from the belief that every occupation requires the worker to be involved in varying degrees with data, people, and things.

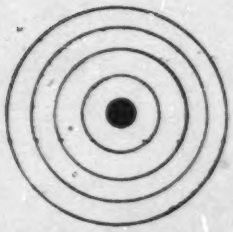
Data - working with information, knowledge, and concepts which may take the form of numbers, words, symbols, etc.

People - working with human beings or animals, if the latter are dealt with on an individual basis.

Things - working with inanimate objects such as materials, tools, machines, equipment, products, etc.

Additional information related to these terms can be found in Appendix A, page 649, Volume II. A copy of the DOT Appendix A is included in this module as Appendix A. Review the material at this time.

APPENDIX A



In reviewing the data, people, and things hierarchies in Appendix A, you should have noted (1) that the numbers in each column are arranged in numerical order, 0 through 8, (2) that the more complicated and difficult the job requirements are, the lower the numbers are, and (3) that the simpler and less demanding the job requirements are, the higher the numbers are.

You should have noted that the numeral 8 means that the worker is not significantly involved with either of the categories of worker functions. The numeral 7, only when referring to data, has the same meaning.

In addition, you should have found that each term used to describe specific hierarchial levels associated with the numerals is defined. For example, in the data hierarchy, synthesizing, coordinating, analyzing, compiling, computing, copying and comparing are defined.

You should attempt to identify, from your own personal knowledge, an occupation or occupations which might be represented by the data/people/things code number .788. Consideration of this should lead you to conclude that such an occupation or occupations would have no significant relationships to either data, people, or things. Because of this, there can be no such occupation.

Now that you are familiar with the hierarchies, you should identify at least one occupation with which you are familiar and, using the material in Appendix A, assign each occupation the data/people/thing code number you consider most appropriate. Then determine each occupation's designated DOT code number from Volume I and determine whether your assigned data/people/thing code number and the last three digits of the actual DOT code number differ significantly. If significant differences are found, attempt to resolve them by reviewing material in Appendix A and the occupational description(s) in Volume I.

Using Volume II, complete Worksheet 2 "Information Provided by the DOT Code Number." Successful completion of this worksheet should confirm your preparedness to retrieve, from Volume II of the DOT, information relative to the DOT code number.

WORKSHEET 2

(Page 1 of 2)

USING VOLUME II OF THE DOT: THE CODE NUMBER

Directions: Using Volume II of the DOT, provide the requested information relevant to specific occupations.

Example: Superintendent, Schools 091.118

a. Occupational Category - *Professional, technical, and managerial occupations*

b. Occupational Division - *Occupations in education*

c. Occupational Group - *Occupations in secondary school education*

d. Primary Involvement (Data/People/Things) - *Data; people*

e. Function Indicated in Area(s) of Primary Involvement - *Coordinating; negotiating*

1. Ballyhoo Man 342.858

   a. Occupational Category -

   b. Occupational Division -

   c. Occupational Group -

   d. Primary Involvement (Data/People/Things) -

   e. Function Indicated in Area(s) of Primary Involvement -

2. Record Clerk 223.388

   a. Occupational Category -

   b. Occupational Division -

   c. Occupational Group -

   d. Primary Involvement (Data/People/Things) -

   e. Function Indicated in Area(s) of Primary Involvement -

3. Glazier 865.781

   a. Occupational Category -

   b. Occupational Division -

   c. Occupational Group -

   d. Primary Involvement (Data/People/Things) -

   e. Function Indicated in Area(s) of Primary Involvement -

4. Counselor 045.108

   a. Occupational Category -

   b. Occupational Division -

   c. Occupational Group -

   d. Primary Involvement (Data/People/Things) -

   e. Function Indicated in Area(s) of Primary Involvement -

5. Teacher, Vocational Training 097.288

   a. Occupational Category -

   b. Occupational Division -

   c. Occupational Group -

   d. Primary Involvement (Data/People/Things) -

   e. Function Indicated in Area(s) of Primary Involvement -

Once you have completed this worksheet, compare your answers with those provided in Appendix C on Worksheet 2 Key, page 53. Attempt to resolve any differences in the two sets of answers by discussing them with a fellow learner or with the facilitator. Then begin work on the next learning activity you have identified.

USING VOLUME II OF THE DOT: WORKER TRAIT GROUPS

On page 651, Volume II, worker traits are defined as "those abilities, personal traits, and individual characteristics required of a worker in order to achieve average successful job performance." A worker trait group then is a grouping of occupations which require workers with similar traits. In Volume II of the DOT, worker trait groups with related work requirements are grouped into areas of work.

Review the twenty-two broad areas of work listed on page 214, Volume II. The titles of these areas are generally self-explanatory. For further explanation of what a specific area includes, refer to the page identified by the number to the right of the title of the area in question. For example, if further information related to art is required, you will find on page 225 of Volume II a listing of the worker trait groups included in this area, plus other page numbers where additional data including listings of specific occupational titles can be found. Note that worker trait group areas of work are formed on the basis of similarities in the last three digits (.xxx) of the DOT code number.

A consolidated listing of worker trait groups within the several areas of work begins on page 217, Volume II. An examination of this listing will reveal the general types of jobs involved in each area. Review the last three digits of each DOT code number listed beside each group title to become familiar with similarities of jobs included in the group as indicated by the data, people, and things ratings.

An area of work and a worker trait group in which you have an interest should be identified for further investigation. For example, with an interest in carpentry, you would probably select the area of "Crafts" and the worker trait group "Craftsmanship and Related Work" for which further information is available on Page 312, Volume II. To substantiate that information related to carpentry can be found here, you might determine the DOT code number for carpenter from Volume I of the DOT, 860.381. Using the knowledge that jobs grouped under the worker trait group "Craftsmanship and Related Work" are listed sequentially by DOT code number, you will find 860.381, carpenter, listed on page 318, Volume II.

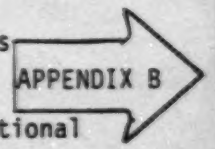
The first page of information about any one worker trait group (page 312 for "Craftsmanship and Related Work") contains much information that might be of interest. On this page, the following information about a worker trait group is presented:

1. Work Performed
2. Worker Requirements
3. Clues for Relating Applicants and Requirements
4. Training and Methods of Entry
5. Related Classifications
6. Qualifications Profile
   a. GED: (General Educational Development)
   b. SVP: (Specific Vocational Preparation)
   c. Apt: (Aptitudes)
   d. Int: (Interests)
   e. Temp: (Temperaments)
   f. Phys.Dem: (Physical Demands)

It should be noted that the first page of information presented relative to any one worker trait group such as page 312, Volume II, is oriented toward an entire group of occupations -- not just one specific occupation. This accounts for why a range of values are assigned to some "Qualifications Profile" factors.

A detailed explanation of the factors listed under "Qualifications Profile" is presented in Appendix B, Volume II. A copy of this appendix is included as Appendix B of this module.

Examine the contents of this appendix to develop an understanding of their meanings and a familiarity with the various levels of "General Educational Development" and its three areas -- "Reasoning Development," "Mathematical Development," and "Language Development" -- with particular emphasis on "Mathematical Development."



You should note that the levels of "General Educational Development" as specified in Appendix B have been related to traditional grade levels in a publication released in 1971 by the Manpower Administration, U.S. Department of Labor, Relating General Educational Development to Career Planning. The following relationships were presented:

DOT GED LEVEL	ASSOCIATED GRADE LEVELS
1	1-3
2	4-6
3	7-8
4	9-12
5	13-14 (College 1 and 2)
6	15-16 (College 3 and 4)

If you have a definite interest in the area of guidance, you should secure a copy of the publication Relating General Educational Development to Career Planning and review its contents.

To demonstrate your ability to retrieve information relative to worker trait groups which is available in Volume II of the DOT, complete Worksheet 3. Use Volume II of the DOT as the sole source for the desired information. The edge index for Volume II plus an explanation of its use is shown on the last page of the volume and might prove of value to you in locating the requested information. If you have difficulty locating the required information, contact a fellow learner who has demonstrated an ability to use Volume II of the DOT or the unit facilitator.

USING THE SUPPLEMENT TO THE DOT

As you will recall, information relevant to worker characteristics presented in Volume II was representative of several jobs not just one particular job. If information similar to that in the "Qualifications Profile" is desired for specific occupations, much of it can be found in Selected Characteristics of Occupations, 1966: A Supplement to the Dictionary of Occupational Titles. Occupational information in this publication, the Supplement, is arranged sequentially by DOT code numbers. The information includes:

1. Column 1 - DOT code number
2. Column 2 - Page number in Volume II of the DOT for worker trait group in which the occupation appears
3. Column 3 - Industry designation

WORKSHEET 3

(Page 1 of 2)

Using Volume II of the DOT: Worker Trait Groups

Directions: Use Volume II of the DOT to gather the following information about the area of work "Machine work" and the worker trait group "Tending" (.885).

1. What work is performed in this group?_____

_____

_____

_____

_____

2. What are the worker requirements which have been specified for this worker trait group?_____

_____

_____

_____

_____

3. List the clues for relating applicants and requirements in this group.

_____

_____

_____

_____

4. What training and methods of entry are required for this group?_____

_____

_____

_____

_____

5. List three (if there are three or more listed) of the related classifications.

_____

_____

_____

6. What is the lowest level of mathematical development that the workers should possess?_____

_____

_____

7. What is the highest level of intelligence suggested that the workers should possess for average performance?_____

_____

Once you have completed this worksheet, compare your answers with those provided on Worksheet 3 Key in Appendix C, page 55. Attempt to resolve any differences in the two sets of answers by discussing them with a fellow learner or with the facilitator. Then begin work on the next learning activity you have identified.

4. Column 4 - Occupational title
5. Column 5 - Physical demands
6. Column 6 - Working conditions
7. Column 7 - Training time consisting of two parts -- general educational development (GED) and specific vocational preparation (SVP)

A brief explanation of this information is presented on pages IX and X of the Supplement. Study these pages at this time.

To use this publication efficiently, one must know the DOT code number of the occupation in which he is interested. Probably the easiest way to determine this, if a generally accepted occupational title is known, is to refer to Volume I of the DOT. For example, on page 360 of Volume I, Hod Carrier is shown to have a DOT code number of 869.887. Using this code number, Hod Carrier is found to be listed on page 255 of the Supplement. Data from this page shows that information concerning the worker trait group to which this occupation is assigned can be found on page 360 of Volume II of the DOT; that the occupation is included in the DOT industry classification "construction;" that the work might require that the worker be strong enough to move very heavy loads (over 100 pounds); that the work involves climbing and balancing on the part of the worker; that the work takes place both inside and outside; that there may be situations in which the worker is exposed to the definite risk of bodily injury; that the work might require a worker whose general education development should be at level 2 (grades 4-6) which includes making arithmetic calculations involving fractions, decimals, and percentages; and that the occupation might necessitate that the worker's specific vocational preparation range from anything from a short demonstration up to and including 30 days. Data presented for each occupation listed in the Supplement can be interpreted by referring to the appendices, pages A-1 through A-8. Obtain information about a specific job using the Supplement and Volume I of the DOT and record them on Worksheet 4.

Compare Supplement data with that in Volume II for the worker trait group to which the job is assigned. Comparing the data for Hod Carrier on page 255 of the Supplement with the data presented for the worker trait group "Handling" on page 360 (from the second column in the Supplement) of Volume II, one can see that the Supplement entries are much more specific, as well they should be, since they refer to a specific job.

WORKSHEET 4

(Page 1 of 2)

USING THE SUPPLEMENT TO THE DOT

Directions: Use Volume I of and the Supplement to the DOT in providing the following information:

0. Identify a specific occupation. *Cold-patch man*

1. What is the DOT code number of this occupation?

2. Identify the levels at which a worker must function to perform in this occupation.

	Digit	Hierarchical Function
Data		
People		
Things		

3. What is the maximum lift in pounds required of the worker?

4. Where does he perform most of his work -- inside or outside?

5. Is his work considered to be hazardous?

6. What types of math skills should this worker possess?

7. How much time is generally required for specific vocational preparations by workers in this occupation?

8. To which worker trait group is this occupation assigned?

WORKSHEET 4
(Page 2 of 2)

9. What is one clue for relating applicants and occupational requirements?

_____

_____

10. What type(s) of worker temperament is required?_____

_____

_____

_____

Once you have completed this worksheet, compare your answers with those provided on Worksheet 4 Key in Appendix C, page 57. Attempt to resolve any differences in the two sets of answers by discussing them with a fellow learner or with the facilitator. Then begin work on the next activity you have identified.

USING SUPPLEMENT 2 TO THE DOT

Another source of information relevant to characteristics of workers in specific occupations in addition to that presented in the aforementioned DOT publications is the publication Selected Characteristics of Workers by Worker Traits and Physical Strength, 1968: Supplement 2 to the Dictionary of Occupational Titles. Occupational information in this publication, Supplement 2, is arranged sequentially (first column of Supplement 2) by worker trait group page number from Volume II. Occupations in any one worker trait group are then generally sequenced (second column of Supplement 2) according to DOT code numbers.

Information relevant to each job that is identified in Supplement 2 includes:

1. Column 1 -- Page number in Volume II of DOT for worker trait group in which occupation appears
2. Column 2 -- DOT code number
3. Column 3 -- Industry designation
4. Column 4 -- Occupational title
5. Column 5 -- Physical demands
6. Column 6 -- Working conditions
7. Column 7 -- Training time consisting of two parts -- general educational development (GED) and specific vocational preparation (SVP)

A brief explanation of this information is presented on pages xi through xiv. Review the information on these pages at this time.

To use Supplement 2 efficiently, one must know the worker trait group page number contained in Volume II in which a specific occupation is categorized. This number can be determined by using either of two sources, Volume II or the Supplement. Ways in which the worker trait group page numbers might be determined from these publications are outlined in activities 4 and 5 above; thus they will not be dealt with in further detail. If you have a question as to how the page number might be determined, review activities 4 and 5 at this time.

By now you should have concluded that the Supplement and Supplement 2 contain the same information. Generally speaking, the only major difference is in how the information is arranged. To demonstrate this,

complete Worksheet 5 and compare the information recorded under Supplement and Supplement 2.

You should find the information from the two sources to be the same. You might note, however, that the DOT code numbers for all the jobs listed under worker trait group page number 337 are not sequenced in numerical order.

7 SUMMARY

Review Figure 1 "Reference Map for Using the Dictionary of Occupational Titles." Does it depict how you have used the DOT? Note that the map shows how the respective DOT publications might be used to locate specific information.

One must recognize that data in one of the DOT publications might not apply precisely to a specific occupation in a specific place, for example, Hod Carrier for the PQR Construction Corporation. DOT data were compiled from a study of many occupations of a specific type and should reflect the characteristics of a specific type of occupation in a large number of employment situations. This concept becomes more and more important as one attempts to find information about a specific type of occupation for one particular employer.

WORKSHEET 5

USING SUPPLEMENT 2 TO THE DOT

Directions: Use the Supplement and Supplement 2 in providing the requested information.

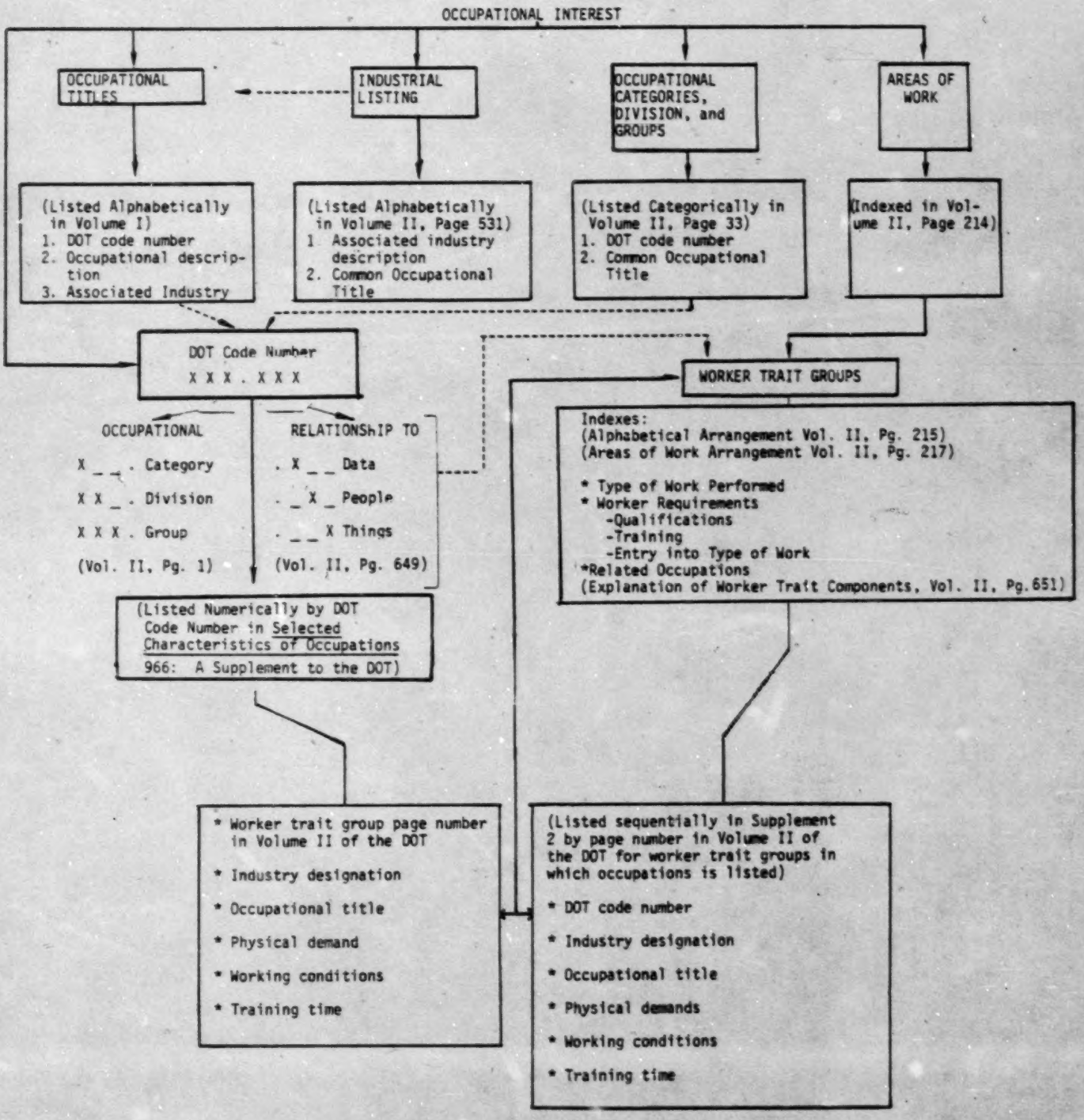
Type of Information	Source of Information	
	Supplement	Supplement 2
1. DOT Code Number	097.228	
2. Page number in Volume II of the DOT for worker trait group in which occupation is listed		
3. Industry designation		
4. Occupational title		
5. Physical demands		
6. Working conditions		
7. Training time a. GED b. SVP	----------	----------

Once you have completed this worksheet, compare your answers with those provided on Worksheet 5 Key in Appendix C, page 59. Attempt to resolve any differences in the two sets of answers by discussing them with a fellow learner or with the facilitator. Then begin work on Learning Activity 7.

FIGURE 1

REFERENCE MAP FOR USING THE DICTIONARY OF OCCUPATIONAL TITLES

(Third Edition)


OCCUPATIONAL INTEREST
OCCUPATIONAL TITLES
INDUSTRIAL LISTING
OCCUPATIONAL CATEGORIES, DIVISION, and GROUPS
AREAS OF WORK
(Listed Alphabetically in Volume I)
1. DOT code number
2. Occupational description
3. Associated Industry
(Listed Alphabetically in Volume II, Page 531)
1 Associated industry description
2. Common Occupational Title
(Listed Categorically in Volume II, Page 33)
1. DOT code number
2. Common Occupational Title
(Indexed in Volume II, Page 214)
DOT Code Number
X X X . X X X
WORKER TRAIT GROUPS
OCCUPATIONAL
X _ _ . Category
X X _ . Division
X X X . Group
(Vol. II, Pg. 1)
RELATIONSHIP TO
. X _ _ Data
. _ X _ People
. _ _ X Things
(Vol. II, Pg. 649)
Indexes:
(Alphabetical Arrangement Vol. II, Pg. 215)
(Areas of Work Arrangement Vol. II, Pg. 217)
* Type of Work Performed
* Worker Requirements
-Qualifications
-Training
-Entry into Type of Work
*Related Occupations
(Explanation of Worker Trait Components, Vol. II, Pg.651)
(Listed Numerically by DOT Code Number in Selected Characteristics of Occupations 966: A Supplement to the DOT)
* Worker trait group page number in Volume II of the DOT
* Industry designation
* Occupational title
* Physical demand
* Working conditions
* Training time
(Listed sequentially in Supplement 2 by page number in Volume II of the DOT for worker trait groups in which occupations is listed)
* DOT code number
* Industry designation
* Occupational title
* Physical demands
* Working conditions
* Training time

Progress Check

If you feel confident of your ability to use the DOT publications as sources of occupational information turn to page 30 and complete the posttest.

POSTTEST

If you do not feel confident of your ability to use the DOT publications as sources of occupational information, review the activities in this module or discuss their use with a fellow student or the facilitator. When you do feel confident, try the posttest.

SELECTED ACTIVITY

How did you do?

Darken the block which contains the number of questions you answered correctly.

Number Correct

1	2	3	4	5	6	7	8	9	10	11	12

Review the activities in this module or discuss your situation with the unit facilitator.

Good! Go on to the next module.

POSTTEST:

USING THE DOT AS A SOURCE OF OCCUPATIONAL INFORMATION

(Page 1 of 2)

Directions: Complete this posttest by providing the appropriate information. Use Volumes I and II of and the Supplement and Supplement 2 to the DOT as appropriate.

0. Occupational title: *Cookie Breaker*

1. DOT code number: _____

2. Describe the work this occupation entails. _____

3. What is the lowest level of mathematical development which a worker in this occupation should possess? _____

4. What is the maximum lift in pounds required of the worker? _____

5. Is the work considered to be hazardous? _____

6. To which worker trait group is this occupation assigned? _____

7. What is another name by which this occupation might be known? _____

8. What is the lowest level of reasoning development which the worker should possess? _____

9. How much time is required for the worker to learn the techniques, acquire information, and develop the facility needed for average performance in a specific occupation-worker situation?_____

_____

_____

_____

_____

10. List at least one clue which might be of value for relating potential workers' characteristics and the occupational requirements for this occupation's worker trait group?_____

_____

_____

11. To what occupational group is this occupation assigned?_____

_____

12. Considering the occupation's relationship to data, people, and things, in which of these categories should a worker in this occupation expect primary involvement?_____

_____

Check your answers with those shown on the Posttest Key on page 60.

Count the number of correct answers and return to the bottom of page 29.

PAGE 29

APPENDICES

APPENDIX A

EXPLANATION OF RELATIONSHIPS WITHIN DATA, PEOPLE, THINGS HIERARCHIES

Much of the information in this edition of the Dictionary is based on the premise that every job requires a worker to function in relation to Data, People, and Things, in varying degrees. These relationships are identified and explained below. They appear in the form of three hierarchies arranged in each instance from the relatively simple to the complex.[1] The identifications attached to these relationships are referred to as worker functions, and provide standard terminology for use in summarizing exactly what a worker does on the job by means of one or more meaningful verbs.

A job's relationship to Data, People, and Things can be expressed in terms of the highest appropriate function in each hierarchy to which the worker has an occupationally significant relationship, and these functions taken together indicate the total level of complexity at which he must perform. The last three digits of the occupational code numbers in the Dictionary reflect significant relationships to Data, People, and Things, respectively.[2] These last three digits express a job's relationship to Data, People, and Things by identifying the highest appropriate function in each hierarchy to which the job requires the worker to have a significant relationship, as reflected by the following table:

---

[1] As each of the relationships to People represents a wide range of complexity resulting in considerable overlap among occupations, their arrangement is somewhat arbitrary and can be considered a hierarchy only in the most general sense.

[2] Only those relationships which are occupationally significant in terms of the requirements of the job are reflected in the code numbers. The incidental relationships which every worker has to Data, People, and Things, but which do not seriously affect successful performance of the essential duties of the job, are not reflected.

DATA (4th digit)	PEOPLE (5th digit)	THINGS (6th digit)
0 Synthesizing	0 Mentoring	0 Setting-Up
1 Coordinating	1 Negotiating	1 Precision Working
2 Analyzing	2 Instructing	2 Operating-Controlling
3 Compiling	3 Supervising	3 Driving-Operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking-Signaling	6 Feeding-Offbearing
7 & 8 No significant relationship	7 Serving	7 Handling
	8 No significant relationship	8 No significant relationship

DATA: Information, knowledge, and conceptions, related to data, people, or things, obtained by observation, investigation, interpretation, visualization, mental creation; incapable of being touched; written data take the form of numbers, words, symbols; other data are ideas, concepts, oral verbalization.

0 Synthesizing: Integrating analyses of data to discover facts and/or develop knowledge concepts or interpretations.

1 Coordinating: Determining time, place, and sequence of operations or action to be taken on the basis of analysis of data; executing determinations and/or reporting on events.

2 Analyzing: Examining and evaluating data. Presenting alternative actions in relation to the evaluation is frequently involved.

3 Compiling: Gathering, collating, or classifying information about data, people, or things. Reporting and/or carrying out a prescribed action in relation to the information is frequently involved.

4 Computing: Performing arithmetic operations and reporting on and/or carrying out a prescribed action in relation to them. Does not include counting.

5 Copying: Transcribing, entering, or posting data.

6 Comparing: Judging the readily observable functional, structural or compositional characteristics (whether similar to or divergent from obvious standards) of data, people, or things.

PEOPLE: Human beings; also animals dealt with on an individual basis as if they were human.

0 Mentoring: Dealing with individuals in terms of their total personality in order to advise, counsel, and/or guide them with regard to problems that may be resolved by legal, scientific, clinical, spiritual, and/or professional principles.

1 Negotiating: Exchanging ideas, information, and opinions with others to formulate policies and programs and/or arrive jointly at decisions, conclusions, or solutions.

2 Instructing: Teaching subject matter to others, or training others (including animals) through explanation, demonstration, and supervised practice; or making recommendations on the basis of technical disciplines.

3 Supervising: Determining or interpreting work procedures for a group of workers, assigning specific duties to them, maintaining harmonious relations among them, and promoting efficiency.

4 Diverting: Amusing others.

5 Persuading: Influencing others in favor of a product, service, or point of view.

6 Speaking-Signaling: Talking with and/or signaling people to convey or exchange information. Includes giving assignments and/or directions to helpers or assistants.

7 Serving: Attending to the needs or requests of people or animals or the expressed or implicit wishes of people. Immediate response is involved.

THINGS: Inanimate objects as distinguished from human beings; substances or materials; machines, tools, equipment; products. A thing is tangible and has shape, form, and other physical characteristics.

0 Setting-Up: Adjusting machines or equipment by replacing or altering tools, jigs, fixtures, and attachments to prepare them to perform their functions, change their performance, or restore their proper functioning if they break down. Workers who set up one or a number of machines for other workers or who set up and personally operate a variety of machines are included here.

1 Precision Working: Using body members and/or tools or work aids to work, move, guide, or place objects or materials in situations where ultimate responsibility for the attainment of standards occurs and selection of appropriate tools, objects, or materials, and the adjustment of the tool to the task require exercise of considerable judgment.

2 Operating-Controlling: Starting, stopping, controlling, and adjusting the progress of machines or equipment designed to fabricate and/or process objects or materials. Operating machines involves setting up the machine and adjusting the machine or material as the work progresses. Controlling equipment involves observing gages, dials, etc., and turning valves and other devices to control such factors as temperature, pressure, flow of liquids, speed of pumps, and reactions of materials. Setup involves several variables and adjustment is more frequent than in tending.

3 Driving-Operating: Starting, stopping, and controlling the actions of machines or equipment for which a course must be steered, or which must be guided, in order to fabricate, process, and/or move things or people. Involves such activities as observing gages and dials; estimating distances and determining speed and direction of other objects; turning cranks and wheels; pushing clutches or brakes; and pushing or pulling gear lifts or levers. Includes such machines as cranes, conveyor systems, tractors, furnace charging machines, paving machines and hoisting machines. Excludes manually powered machines, such as handtrucks and dollies, and power assisted machines, such as electric wheelbarrows and handtrucks.

4 Manipulating: Using body members, tools, or special devices to work, move, guide, or place objects or materials. Involves some latitude for judgment with regard to precision attained and selecting appropriate tool, object, or material, although this is readily manifest.

5 Tending: Starting, stopping, and observing the functioning of machines and equipment. Involves adjusting materials or controls of the machine, such as changing guides, adjusting timers and temperature gages, turning valves to allow flow of materials, and flipping switches in response to lights. Little judgment is involved in making these adjustments.

6 Feeding-Offbearing: Inserting, throwing, dumping, or placing materials in or removing them from machines or equipment which are automatic or tended or operated by other workers.

7 Handling: Using body members, handtools, and/or special devices to work, move, or carry objects or materials. Involves little or no latitude for judgment with regard to attainment of standards or in selecting appropriate tool, object, or material.

NOTE: Included in the concept of Feeding-Offbearing, Tending, Operating-Controlling and Setting-Up, is the situation in which the worker is actually part of the setup of the machine, either as the holder and guider of the material or holder and guider of the tool.

APPENDIX B

EXPLANATION OF WORKER TRAIT COMPONENTS

Those abilities, personal traits, and individual characteristics required of a worker in order to achieve average successful job performance are referred to as worker traits. Occupational information presented in Volumes I and II is based in part on analysis of required worker traits in terms of the six distinct worker trait components described in this appendix. These six components have been selected for this purpose because they provide the broadest and yet most comprehensive framework for the effective presentation of worker trait information. Within this framework the user will find data concerning the requirements of jobs for: (1) The amount of general educational development and specific vocational preparation a worker must have, (2) the specific capacities and abilities required for him in order to learn or perform certain tasks or duties, (3) preferences for certain types of work activities or experiences considered necessary for job success, (4) types of occupational situations to which an individual must adjust, (5) physical activities required in work situations, and (6) physical surroundings prevalent in jobs.

Information reflecting significant worker trait requirements is contained, explicitly or by implication, in the job definitions in Volume I. In the Worker Traits Arrangement in Volume II, the qualifications profile for each worker trait group shows the range of required traits and/or levels of traits for the first five of these components. Numbers or letters are used to identify each specific trait and level. In this appendix, these identifying numbers and letters appear in italics.

The worker trait components are:

I. Training time (general educational development, specific vocational preparation)
II. Aptitudes
III. Interests
IV. Temperaments
V. Physical demands
VI. Working conditions[1]

I. Training Time

The amount of general educational development and specific vocational preparation required for a worker to acquire the knowledge and abilities necessary for average performance in a particular job.

General Educational Development: This embraces those aspects of education (formal and informal) which contribute to the worker's (a) reasoning development and ability to follow instructions, and (b) acquisition of "tool" knowledges, such as language and mathematical skills. It is education of a general nature which does not have a recognized, fairly specific, occupational objective. Ordinarily such education is obtained in elementary school, high school, or college. It also derives from experience and individual study.

The following is a table explaining the various levels of general educational development.

GENERAL EDUCATIONAL DEVELOPMENT

Level	Reasoning Development	Mathematical Development	Language Development
6	Apply principles of logical or scientific thinking to a wide range of intellectual and practical problems. Deal with nonverbal symbolism (formulas, scientific equations, graphs, musical notes, etc.) in its most difficult phases. Deal with a variety of abstract and concrete variables. Apprehend the most abstruse classes of concepts.	Apply knowledge of advanced mathematical and statistical techniques such as differential and integral calculus, factor analysis, and probability determination, or work with a wide variety of theoretical mathematical concepts and make original applications of mathematical procedures, as in empirical and differential equations.	Comprehension and expression of a level to —Report, write, or edit articles for such publications as newspapers, magazines, and technical or scientific journals. Prepare and draw up deeds, leases, wills, mortgages, and contracts. —Prepare and deliver lectures on politics, economics, education, or science. —Interview, counsel, or advise such people as students, clients, or patients, in such matters as welfare eligibility, vocational rehabilitation, mental hygeine, or marital relations. —Evaluate engineering technical data to design buildings and bridges.
5	Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions, in books, manuals, and mathematical or diagrammatic form. Deal with several abstract and concrete variables.		

[1] Working conditions were recorded as part of each job analysis, and are reflected, when appropriate, in job definitions in Volume I. However, because they did not contribute to the homogeneity of worker trait groups, they do not appear as a component in the Worker Traits Arrangement.

4	Apply principles of rational systems[1] to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.	Perform ordinary arithmetic, algebraic, and geometric procedures in standard, practical applications.	Comprehension and expression of a level to —Transcribe dictation, make appointments for executive and handle his personal mail, interview and screen people wishing to speak to him, and write routine correspondence on own initiative. —Interview job applicants to determine work best suited for their abilities and experience, and contact employers to interest them in services of agency. —Interpret technical manuals as well as drawings and specifications, such as layouts, blueprints, and schematics.
3	Apply common sense understanding to carry out instructions furnished in written, oral, or diagrammatic form. Deal with problems involving several concrete variables in or from standardized situations.	Make arithmetic calculations involving fractions, decimals and percentages.	Comprehension and expression of a level to —File, post, and mail such material as forms, checks, receipts, and bills. —Copy data from one record to another, fill in report forms, and type all work from rough draft or corrected copy. —Interview members of household to obtain such information as age, occupation, and number of children, to be used as data for surveys, or economic studies. —Guide people on tours through historical or public buildings, describing such features as size, value, and points of interest.
2	Apply common sense understanding to carry out detailed but uninvolved written or oral instructions. Deal with problems involving a few concrete variables in or from standardized situations.	Use arithmetic to add, subtract, multiply, and divide whole numbers.	
1	Apply common sense understanding to carry out simple one- or two-step instructions. Deal with standardized situations with occasional or no variables in or from these situations encountered on the job.	Perform simple addition and subtraction, reading and copying of figures, or counting and recording.	Comprehension and expression of a level to —Learn job duties from oral instructions or demonstration. —Write identifying information, such as name and address of customer, weight, number, or type of product, on tags, or slips. —Request orally, or in writing, such supplies as linen, soap, or work materials.

Specific Vocational Preparation: The amount of time required to learn the techniques, acquire information, and develop the facility needed for average performance in a specific job-worker situation. This training may be acquired in a school, work, military, institutional, or avocational environment. It does not include orientation training required of even every fully qualified worker to become accustomed to the special conditions of any new job. Specific vocational training includes training given in any of the following circumstances:

a. Vocational education (such as high school commercial or shop training, technical school, art school, and that part of college training which is organized around a specific vocational objective);

b. Apprentice training (for apprenticeable jobs only);

c. In-plant training (given by an employer in the form of organized classroom study);

d. On-the-job training (serving as learner or trainee on the job under the instruction of a qualified worker);

e. Essential experience in other jobs (serving in less responsible jobs which lead to the higher grade job or serving in other jobs which qualify).

The following is an explanation of the various levels of specific vocational preparation.

Level	*Time*	*Level*	*Time*
1	Short demonstration only.	5	Over 6 months up to and including 1 year.
2	Anything beyond short demonstration up and including 30 days.	6	Over 1 year up to and including 2 years.
3	Over 30 days up to and including 3 months.	7	Over 2 years up to and including 4 years.
4	Over 3 months up to and including 6 months.	8	Over 4 years up to and including 10 years.
		9	Over 10 years.

II. APTITUDES

Specific capacities and abilities required of an individual in order to learn or perform adequately a task or job duty.

G INTELLIGENCE: General learning ability. The ability to "catch on" or understand instructions and underlying principles. Ability to reason and make judgments. Closely related to doing well in school.

V VERBAL: Ability to understand meanings of words and ideas associated with them, and to use them effectively. To comprehend language, to understand relationships between words, and to understand meanings of whole sentences and paragraphs. To present information or ideas clearly.

N NUMERICAL: Ability to perform arithmetic operations quickly and accurately.

S SPATIAL: Ability to comprehend forms in space and understand relationships of plane and solid objects. May be used in such tasks as blueprint reading and in solving geometry problems. Frequently described as the ability to "visualize" objects of two or three dimensions, or to think visually of geometric forms.

P FORM PERCEPTION: Ability to perceive pertinent detail in objects or in pictorial or graphic material; to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines.

Q CLERICAL PERCEPTION: Ability to perceive pertinent detail in verbal or tabular material; to observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computation.

K MOTOR COORDINATION: Ability to coordinate eyes and hands or fingers rapidly and accurately in making precise movements with speed. Ability to make a movement response accurately and quickly.

F FINGER DEXTERITY: Ability to move the fingers and manipulate small objects with the fingers rapidly or accurately.

M MANUAL DEXTERITY: Ability to move the hands easily and skillfully; to work with the hands in placing and turning motions.

E EYE-HAND-FOOT COORDINATION: Ability to move the hand and foot coordinately with each other in accordance with visual stimuli.

C COLOR DISCRIMINATION: Ability to perceive or recognize similarities or differences in colors, or in shades or other values of the same color; to identify a particular color, or to recognize harmonious or contrasting color combinations, or to match colors accurately.

Explanation of Levels

The digits indicate how much of each aptitude the job requires for satisfactory (average) performance. The average requirements, rather than

maximum or minimum, are cited. The amount required is expressed in terms of equivalent amounts possessed by segments of the general working population.

The following scale is used:

1 The top 10 percent of the population. This segment of the population possesses an extremely high degree of the aptitude.

2 The highest third exclusive of the top 10 percent of the population. This segment of the population possesses an above average or high degree of the aptitude.

3 The middle third of the population. This segment of the population possesses a medium degree of the aptitude, ranging from slightly below to slightly above average.

4 The lowest third exclusive of the bottom 10 percent of the population. This segment of the population possesses a below average or low degree of the aptitude.

5 The lowest 10 percent of the population. This segment of the population possesses a negligible degree of the aptitude.

Significant Aptitudes

Certain aptitudes appear in boldface type on the qualifications profiles for the worker trait groups. These aptitudes are considered to be occupationally significant for the specific group; i.e., essential for average successful job performance. All boldface aptitudes are not necessarily required of a worker for each individual job within a worker trait group, but some combination of them is essential in every case.

III. INTERESTS

Preferences for certain types of work activities or experiences, with accompanying rejection of contrary types of activities or experiences. Five pairs of interest factors are provided so that a positive preference for one factor of a pair also implies rejection of the other factor of that pair.

1 Situations involving a preference for activities dealing with things and objects.	vs.	6 Situations involving a preference for activities concerned with people and the communication of ideas.
2 Situations involving a preference for activities involving business contact with people.	vs.	7 Situations involving a preference for activities of a scientific and technical nature.

3	Situations involving a preference for activities of a routine, concrete, organized nature.	vs.	8 Situations involving a preference for activities of an abstract and creative nature.
4	Situations involving a preference for working for people for their presumed good, as in the social welfare sense, or for dealing with people and language in social situations.	vs.	9 Situations involving a preference for activities that are nonsocial in nature, and are carried on in relation to processes, machines, and techniques.
5	Situations involving a preference for activities resulting in prestige or the esteem of others.	vs.	0 Situations involving a preference for activities resulting in tangible, productive satisfaction.

IV. TEMPERAMENTS

Different types of occupational situations to which workers must adjust.

1 Situations involving a variety of duties often characterized by frequent change.

2 Situations involving repetitive or short cycle operations carried out according to set procedures or sequences.

3 Situations involving doing things only under specific instruction, allowing little or no room for independent action or judgment in working out job problems.

4 Situations involving the direction, control, and planning of an entire activity or the activities of others.

5 Situations involving the necessity of dealing with people in actual job duties beyond giving and receiving instructions.

6 Situations involving working alone and apart in physical isolation from others, although the activity may be integrated with that of others.

7 Situations involving influencing people in their opinions, attitudes, or judgments about ideas or things.

8 Situations involving performing adequately under stress when confronted with the critical or unexpected or when taking risks.

9 Situations involving the evaluation (arriving at generalizations, judgments, or decisions) of information against sensory or judgmental criteria.

0 Situations involving the evaluation (arriving at generalizations, judgments, or decisions) of information against measurable or verifiable criteria.

X Situations involving the interpretation of feelings, ideas, or facts in terms of personal viewpoint.

y Situations involving the precise attainment of set limits, tolerances, or standards.

V. PHYSICAL DEMANDS

Physical demands are those physical activities required of a worker in a job.

The physical demands referred to in this Dictionary serve as a means of expressing both the physical requirements of the job and the physical capacities (specific physical traits) a worker must have to meet the requirements. For example, "seeing" is the name of a physical demand required by many jobs (perceiving by the sense of vision), and also the name of a specific capacity possessed by many people (having the power of sight). The worker must possess physical capacities at least in an amount equal to the physical demands made by the job.

The Factors

1 Lifting, Carrying, Pushing, and/or Pulling (Strength). These are the primary "strength" physical requirements, and generally speaking, a person who engages in one of these activities can engage in all. Specifically, each of these activities can be described as:

(1) Lifting: Raising or lowering an object from one level to another (includes upward pulling).
(2) Carrying: Transporting an object, usually holding it in the hands or arms or on the shoulder.
(3) Pushing: Exerting force upon an object so that the object moves away from the force (includes slapping, striking, kicking and treadle actions).
(4) Pulling: Exerting force upon an object so that the object moves toward the force (includes jerking).

The five degrees of Physical Demands Factor No. 1 (Lifting, Carrying, Pushing, and/or Pulling), are as follows:

S Sedentary Work

Lifting 10 lbs. maximum and occasionally lifting and/or carrying such articles as dockets, ledgers, and small tools. Although a sedentary job is

defined as one which involves sitting, a certain amount of walking and standing is often necessary in carrying out job duties. Jobs are sedentary if walking and standing are required only occasionally and other sedentary criteria are met.

L Light Work

Lifting 20 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 10 lbs. Even though the weight lifted may be only a negligible amount, a job is in this category when it requires walking or standing to a significant degree, or when it involves sitting most of the time with no degree of pushing and pulling of arm and/or leg controls.

M Medium Work

Lifting 50 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 25 lbs.

H Heavy Work

Lifting 100 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 50 lbs.

V Very Heavy Work

Lifting objects in excess of 100 lbs. with frequent lifting and/or carrying of objects weighing 50 lbs. or more.

Climbing and/or Balancing:

(1) Climbing: Ascending or descending ladders, stairs, scaffolding, ramps, poles, ropes, and the like, using the feet and legs and/or hands and arms.

(2) Balancing: Maintaining body equilibrium to prevent falling when walking, standing, crouching, or running on narrow, slippery, or erratically moving surfaces; or maintaining body equilibrium when performing gymnastic feats.

Stooping, Kneeling, Crouching, and/or Crawling:

(1) Stooping: Bending the body downward and forward by bending the spine at the waist.

(2) Kneeling: Bending the legs at the knees to come to rest on the knee or knees.

(3) Crouching: Bending the body downward and forward by bending the legs and spine.

(4) Crawling: Moving about on the hands and knees or hands and feet.

4 Reaching, Handling, Fingering, and/or Feeling:

(1) Reaching: Extending the hands and arms in any direction.

(2) Handling: Seizing, holding, grasping, turning, or otherwise working with the hand or hands (fingering not involved).

(3) Fingering: Picking, pinching, or otherwise working with the fingers primarily (rather than with the whole hand or arm as in handling).

(4) Feeling: Perceiving such attributes of objects and materials as size, shape, temperature, or texture, by means of receptors in the skin, particularly those of the finger tips.

5 Talking and/or Hearing:

(1) Talking: Expressing or exchanging ideas by means of the spoken word.

(2) Hearing: Perceiving the nature of sounds by the ear.

6 Seeing:

Obtaining impressions through the eyes of the shape, size, distance, motion, color, or other characteristics of objects. The major visual functions are: (1) acuity, far and near, (2) depth perception, (3) field of vision, (4) accommodation, (5) color vision. The functions are defined as follows:

(1) Acuity, far--clarity of vision at 20 feet or more.
Acuity, near--clarity of vision at 20 inches or less.

(2) Depth perception--three dimensional vision. The ability to judge distance and space relationships so as to see objects where and as they actually are.

(3) Field of vision--the area that can be seen up and down or to the right or left while the eyes are fixed on a given point.

(4) Accommodation--adjustment of the lens of the eye to bring an object into sharp focus. This item is especially important when doing near-point at varying distances from the eye.

(5) Color vision--the ability to identify and distinguish colors.

VI. WORKING CONDITIONS

Working conditions are the physical surroundings of a worker in a specific job.

1 Inside, Outside, or Both:

I Inside: Protection from weather conditions but not necessarily from temperature changes.

O Outside: No effective protection from weather.

B Both: Inside and outside.

A job is considered "inside" if the worker spends approximately 75 percent or more of his time inside, and "outside" if he spends approximately 75 percent or more of his time outside. A job is considered "both" if the activities occur inside or outside in approximately equal amounts.

2 Extremes of Cold Plus Temperature Changes:

(1) Extremes of Cold: Temperature sufficiently low to cause marked bodily discomfort unless the worker is provided with exceptional protection.

(2) Temperature Changes: Variations in temperature which are sufficiently marked and abrupt to cause noticeable bodily reactions.

3 Extremes of Heat Plus Temperature Changes:

(1) Extremes of Heat: Temperature sufficiently high to cause marked bodily discomfort unless the worker is provided with exceptional protection.

(2) Temperature Changes: Same as 2 (2).

4 Wet and Humid:

(1) Wet: Contact with water or other liquids.

(2) Humid: Atmospheric condition with moisture content sufficiently high to cause marked bodily discomfort.

5 Noise and Vibration:

Sufficient noise, either constant or intermittent, to cause marked distraction or possible injury to the sense of hearing and/or sufficient vibration (production of an oscillating movement or strain on the body or its extremities from repeated motion or shock) to cause bodily harm if endured day after day.

6 Hazards:

Situations in which the individual is exposed to the definite risk of bodily injury.

7 Fumes, Odors, Toxic Conditions, Dust, and Poor Ventilation:

(1) Fumes: Smoky or vaporous exhalations, usually odorous, thrown off as the result of combustion or chemical reaction.

(2) Odors: Noxious smells, either toxic or nontoxic.

(3) Toxic Conditions: Exposure to toxic dust, fumes, gases, vapors, mists, or liquids which cause general or localized disabling conditions as a result of inhalation or action on the skin.

(4) Dust: Air filled with small particles of any kind, such as textile dust, flour, wood, leather, feathers, etc., and inorganic dust, including silica and asbestos, which make the workplace unpleasant or are the source of occupational diseases.

(5) Poor Ventilation: Insufficient movement of air causing a feeling of suffocation; or exposure to drafts.

Appendix C

PRETEST KEY:

USING THE DOT AS A SOURCE OF OCCUPATIONAL INFORMATION
(Page 1 of 2)

Directions: Complete the pretest by providing the appropriate information. Use Volumes I and II of and the Supplement and Supplement 2 to the DOT as appropriate.

0. Occupational title: *Gold Charmer*

1. DOT code number: *749.781*

2. Describe the work this occupation entails. *Lays metal leaf, such as aluminum, gold, or silver, on surfaces of items, such as books, furniture, harps, and signs, to decorate them using brushes: Brushes sizing (thin glue) on sections of items which are to be covered with leaf (gilded). Paints sizing according to design. Transfers leaf from supply book onto pallet, rubs camel-hair brush in hair to electrify it, picks up leaf with brush and lays leaf over sizing. Rubs leaf with polished burnishing agate to polish leaf or simulate worn metal finish. May brush or spray protective lacquer coat over guilded surface. May transfer leaf from supply book onto pallet, pick up leaf with T-shaped, felt-edged tool, and lay leaf over sizing (GILDER II). May press sheets or ribbons of leaf onto sizing by hand and distribute leaf evenly over surface and remove excess, using brush.*

3. What is the lowest level of mathematical development which a worker on this occupation should possess? *Level 3 (Grades 7-8)--make arithmetic calculations involving fractions, decimals, and percentages.*

4. What is the maximum lift in pounds required of the worker? *50 pounds*

PRETEST KEY:

(Page 2 of 2)

5. Is the work considered to be hazardous? *No*

6. To which worker trait group is this occupation assigned? *Precision working*

7. What is another name by which this occupation might be known? *Gilder I or gold-leaf gilder or metal-leaf gilder or metal-leaf layer*

8. What is the lowest level of reasoning development which the worker should possess? *Level 3 (Grades 7-8)--apply common sense understanding to carry out instructions furnished in written, oral, or diagrammatic form. Deal with problems involving several concrete variables in or from standardized situations.*

9. How much time is required for the worker to learn the techniques, acquire information, and develop the facility needed for average performance in a specific occupation-worker situation? *SVP Level 6--over 1 year up to and including 2 years*

10. List at least one clue which might be of value for relating potential worker's characteristics and the occupational requirements for this occupation's worker trait group? *(1) Success in craft courses in school. (2) Hobby of making scale models of objects.*

11. To what occupational group is this occupation assigned? *Painting, decorating, and related occupations, n.e.c.*

12. Considering the occupation's relationship to data, people, and things, in which of these categories should a worker in this occupation expect primary involvement? *Things (Precision Working)*

WORKSHEET 1 KEY

LOCATING INFORMATION IN VOLUME I OF THE DOT

Occupational Title	DOT Code Number	WHAT Work Gets Done	WHY It Gets Done	HOW It Gets Done
1. Acid Dumper	727.887	Positions batteries	To remove used forming acid	Starts conveyors...Pushes storage batteries...Manually unlocks and places on rack... Places drained batteries...
2. Goodwill Ambassador	293.358	Promotes goodwill and solicits trade	For business firms who are members of parent organization	Develops list of prospective clients...Visits home of... Usually presents token gifts ...Prepares reports of services rendered and receptions received...etc.
3. Snout Puller	525.884	Removes meat, glands, and organs from carcass heads	For use in making meat products or processing for medical use or byproducts	Places head on...and trims skin and meat from jaw... Cuts fat from lean meat... Inserts knife into mouth... Trims fat...Cuts and pulls hog snout...etc.
4. Sugar Tapper	442.887	Collects sap	To use in making maple sirup	Bores holes...Inserts spout... Hangs bucket...etc.
5. Whisker Kinker	726.884	Assembles semiconductor devices	To produce assembled device	Inserts posts...Removes processed parts...Places cover on boat and positions lead wires...Places boat in furnace...Removes boat...Fits cover on boat...etc.

WORKSHEET 2 KEY

USING VOLUME II OF THE DOT: THE CODE NUMBER
(Page 1 of 2)

Directions: Using Volume II of the DOT, provide the requested information relevant to specific occupations.

Example: Superintendent, Schools 091.118

a. Occupational Category - *Professional, technical, and managerial occupations*

b. Occupational Division - *Occupations in education*

c. Occupational Group - *Occupations in secondary school education*

d. Primary Involvement (Data/People/Things) - *Data; people*

e. Function Indicated in Area(s) of Primary Involvement - *Coordinating; negotiating*

1. Ballyhoo Man 342.858

   a. Occupational Category - *Service occupations*

   b. Occupational Division - *Amusement and recreation service occupations*

   c. Occupational Group - *Amusement service and concession attendants*

   d. Primary Involvement (Data/People/Things) - *People*

   e. Function Indicated in Area(s) of Primary Involvement - *Persuading*

2. Record Clerk 223.388

   a. Occupational Category - *Clerical and sales occupations*

   b. Occupational Division - *Material and production recording occupations*

   c. Occupational Group - *Stock clerk and related occupations*

   d. Primary Involvement (Data/People/Things) - *Data*

   e. Function Indicated in Area(s) of Primary Involvement - *Compiling*

3. Glazier 865.781

   a. Occupational Category - *Structural work occupations*

   b. Occupational Division - *Construction occupations, n.e.c.*

c. Occupational Group - *Glaziers and related occupations*

d. Primary Involvement (Data/People/Things) - *Things*

e. Function Indicated in Area(s) of Primary Involvement - *Precision working*

4. Counselor 045.108

a. Occupational Category - *Professional, technical, and managerial occupations*

b. Occupational Division - *Occupations in life sciences*

c. Occupational Group - *Occupations in psychology*

d. Primary Involvement (Data/People/Things) - *People*

e. Function Indicated in Area(s) of Primary Involvement - *Mentoring*

5. Teacher, Vocational Training 097.288

a. Occupational Category - *Professional, technical, and managerial occupations*

b. Occupational Division - *Occupations in education*

c. Occupational Group - *Occupations in vocational education, n.e.c.*

d. Primary Involvement (Data/People/Things) - *Data; people*

e. Function Indicated in Area(s) of Primary Involvement - *Analyzing; instructing*

WORKSHEET 3 KEY

(Page 1 of 2)

USING VOLUME II OF THE DOT: WORKER TRAIT GROUPS

Directions: Use Volume II of the DOT to gather the following information about the area of work "Machine work" and the worker trait group "Tending" (.885).

1. What work is performed in this group? *Work activities in this group primarily involve starting, stopping, and observing the functioning of machines and equipment. Workers are not concerned with setting up machines, but must be alert in changing guides, adjusting timers and temperature gages, turning valves, pushing buttons, flipping switches, and making other minor adjustments.*

2. What are the worker requirements which have been specified for this worker trait group? *An occupationally significant combination of: an inclination toward working with machinery and equipment; the ability and willingness to learn and follow instructions; ease in adjusting to routine, repetitive work; and capacity for sustained attention to functioning of machines or equipment.*

3. List the clues for relating applicants and requirements in this group.

   (1) Exposure to machine shop courses in high school.

   (2) Expressed desire to work around machinery.

   (3) Participation in athletics or similar leisure time activities requiring good physical coordination and alertness.

   (4) Casual work experience in a shop environment.

4. What training and methods of entry are required for this group? *Preference in hiring will frequently be given to workers with some exposure to machines in a school or work environment. The time required for a worker to become proficient at his job may range from a very short period, such as a few days, all the way up to 6 months, depending on the complexity of the*

individual work situation. On-the-job training is the most common method by which workers reach an acceptable level of competence in their jobs.

Machine tenders are often given the opportunity to assume more responsibility for the functioning of machines and advance to jobs as operators.

5. List three (if there are three or more listed) of the related classifications.

Sorting, Inspecting, Measuring, and Related Work; Operating-Controlling; Manipulating; Feeding-Offbearing; Handling; and Driving-Operating.

6. What is the lowest level of mathematical development that the workers should possess? *Varies, but Level 1 (Grades 1-3) is lowest recommended--Perform simple addition and subtraction, reading and copying of figures, or counting and recording.*

7. What is the highest level of intelligence suggested that the workers should possess for average performance? *Level 3 -- The middle third of the population.*

WORKSHEET 4 KEY

(Page 1 of 2)

USING THE SUPPLEMENT TO THE DOT

Directions: Use Volume I of and the Supplement to the DOT in providing the following information:

0. Identify a specific occupation: *Cold-patch man*

1. What is the DOT code number of this occupation? *853.887*

2. Identify the levels at which a worker must function to perform in this occupation.

	Digit	Hierarchical Function
Data	*8*	*No significant relationship*
People	*8*	*No significant relationship*
Things	*7*	*Handling*

3. What is the maximum lift in pounds required of the worker? *50 pounds*

4. Where does he perform most of his work--inside or outside? *Outside*

5. Is his work considered to be hazardous? *No*

6. What types of math skills should this worker posses: *Level 2 (Grades 4-6)--Use arithmetic to add, subtract, multiply, and divide whole numbers*

7. How much time is generally required for specific vocational preparations by workers in this occupation? *Level 2--Short demonstration to 30 days*

8. To which worker trait group is this occupation assigned? *Handling*

9. What is one clue for relating applicants and occupational requirements?

(1) Good physical condition. (2) Undistinguished scholastic record (3) Expressed preference for "outside" or factory work.

WORKSHEET 4 KEY:

(Page 2 of 2)

10. What type(s) of worker temperament is required? *(1) Situations involving repetitive or short cycle operations carried out according to set procedures or sequences. (2) Situations involving doing things only under specific instruction, allowing little or no room for independent action or judgment in working out problems.*

WORKSHEET 5 KEY:

USING SUPPLEMENT 2 TO THE DOT

Directions: Use the Supplement and Supplement 2 in providing the requested information.

Type of Information	Source of Information	
	Supplement	Supplement 2
1. DOT code number	*097.228*	*097.228*
2. Page number in Volume II of the DOT for worker trait group in which occupation is listed	*337*	*337*
3. Industry designation	*Education*	*Education*
4. Occupational title	*Instructor, Vocational Training*	*Instructor, Vocational Training*
5. Physical demands	*Light work; talking and/or hearing*	*Light work; talking and/or hearing*
6. Working conditions	*Inside*	*Inside*
7. Training time	----------	----------
a. GED	*Level 4 (Grades 9-12)*	*Level 4 (Grades 9-12)*
b. SVP	*Level 7--Over 2 years up to and including 4 years*	*Level 7--Over 2 years up to and including 4 years*

POSTTEST KEY:

USING THE DOT AS A SOURCE OF OCCUPATIONAL INFORMATION
(Page 1 of 2)

Directions: Complete this posttest by providing the appropriate information. Use Volumes I and II of and the Supplement and Supplement 2 to the DOT as appropriate.

0. Occupational title: *Cookie Breaker*

1. DOT code number: *788.887*

2. Describe the work this occupation entails. *Tends machine that bends flare to conform to shape of arch; wets flare to make it pliable; holds lasted insole against hexagon-shaped roller that beats flare against arch contour of last; may tack insole to last; may apply grease, paste, powder, or wax to last to prevent shoe from sticking to last.*

3. What is the lowest level of mathematical development which a worker in this occupation should possess? *Level 1 (Grades 1-3)--Perform simple addition and subtraction, reading and copying of figures, or counting and recording.*

4. What is the maximum lift in pounds required of the worker? *20 pounds*

5. Is the work considered to be hazardous? *No*

6. To which worker trait group is this occupation assigned? *Handling*

7. What is another name by which this occupation might be known? *Flare Breaker*

8. What is the lowest level of reasoning development which the worker should possess? *Level 1 (Grades 1-3)--Apply common sense understanding to carry out simple one- or two-step instructions. Deal with standardized situations with occasional or no variables in or from these situations*

encountered on the job.

9. How much time is required for the worker to learn the techniques, acquire information, and develop the facility needed for average performance in a specific occupation-worker situation? *SVP Level 2--Anything beyond short demonstration up to and including 30 days*

10. List at least one clue which might be of value for relating potential worker's characteristics and the occupational requirements for this occupation's worker trait group? *(1) Good physical condition (2) Undistinguished scholastic record (3) Expressed preference for "outside" or factory work.*

11. To what occupational group is this occupation assigned? *Occupations in Fabrication and Repair of Footwear*

12. Considering the occupation's relationship to data, people, and things, in which of these categories should a worker in this occupation expect primary involvement? *Things (Handling)*

CE 008 819